

Phytochemical, Biochemical and Pharmacological Properties of *Plantago ovata* (Ispaghula Husk) - A Review

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ABSTRACT: The plantation, evolution, phytochemical, pharmaceutical and pharmacological properties of *Plantago ovata* have been reviewed to recommit the plant's diverse properties. *P. ovata* belonging to the family Plantaginaceae is a perennial plant native to the Mediterranean area, particularly Southern Europe, North Africa and West Asia. It has a variety of medicinal and pharmacological effects as it is frequently employed in a variety of medications for its medicinal features such as mucilage, super-disintegrant, gelling agent and suspending agent as well as pharmacological effects such as anti-diarrheal, anti-constipation, wound care, hypocholsterolemic and hypoglycemia. That's why, *P. ovata* may be utilized to make a variety of medicinal products as well as a safe and effective ethnobotanical cure for different health problems. A number of market preparations of Ispaghula are also available in the local market of Bangladesh. Information regarding diversified properties of *P. ovata* collected from different electronic databases (PubMed, Springer link, MDPI link, ResearchGate, Google, Google Scholar and Science Direct) have been summarized here to support the researchers to retrieve information about *P. ovata*.

Key words: Ispaghula Husk, *P. ovata* (Psyllium), gelling agent, disintegrant, suspending agent, hypoglycemia.

INTRODUCTION

Psyllium has been applied as a laxative since hoary antiquity, but novel pharmacological applications have recently been found.¹ Psyllium is a general term for legionary species of the *Plantago* genus whose seeds are commercially used for mucilage emanation. *Plantago* seed, psyllium seed or plantain seed is a refined, anhydrous, inveterate seed of *Plantago psyllium* or *P. indica* that belongs to the

Plantaginaceae family. *Plantago* is a genus with around 200 species. Three principal species are *P. ovata*, *P. psyllium* and *P. indica*. These are commercially contrived in a number of European nations, the former Soviet Union, Pakistan and India. Ispaghula, the conventional denomination for *P. ovata* in India, is derived from the Persian words isapi and gholi, which mean huss lug and relate the form of the seed. In terms of psyllium emanation and freight, India subjugates the global market.² The exterior seed coat of *Plantago* seeds contains 10-30% hydrocolloid, which may be divided into acidic and neutral polysaccharides and hydrolyzed to provide

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Pharmacological And Biochemical Properties Volume2

Marco Cascella



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Ethnopharmacological Properties, Biological Activity and Phytochemical Attributes of Medicinal Plants, Volume 2 Bharat Singh, 2023-10-24 This book covers the morphological characteristics ethnopharmacological properties isolated and identified structurally diverse secondary metabolites biological and pharmacological activities of medicinal plants Ethnopharmacology is the systematic study of folklore traditional medicines which continue to provide innovative drugs and lead molecules for the pharmaceutical industry In fact plant secondary metabolites used as a single molecule or as a mixture are medicines that can be effective and safe even when synthetic drugs fail Therefore the description of these secondary metabolites as well as methods for the targeted expression and or purification is of high interest In addition to surveying the morphological features ethnopharmacological properties biological and pharmacological activities and studies of clinical trials this book offers a comprehensive treatment of 56 plant species It also presents the cell culture conditions and various methods used for increasing the production of medicinally important secondary metabolites in plant cell cultures This volume Provides the morphological features habitat and distribution of each species of 56 genera selected from the different regions of the world Presents ethnopharmacological applications of various species of the 56 genera included in this book Different species of 56 genera are used for ethnomedicinal uses by the people of various countries of the world Describes structures of various secondary metabolites identified in 56 plant species together with their biological and pharmacological activities Discusses strategies of secondary metabolites production such as organ culture pH elicitation hairy root cultures light and mutagenesis Provides a complete overview of each species of 56 genera and complete information up to 2022 Ethnopharmacological Properties Biological Activity and Phytochemical Attributes of Medicinal Plants is an important book for undergraduate and postgraduate students pharmacologists phytochemists Ayurvedic practitioners medical doctors and biotechnologists interested in the ethnopharmacological properties phytochemistry and biological and pharmacological activities of plants *Advances in Drug Research* ,1997-07-21 This volume continues the trend for *Advances in Drug Research* of shorter but more frequent volumes In line with the tradition of the series chapters on general themes are interspersed with chapters on specific drug classes and targets *Frontiers in Computational Chemistry: Volume 2* Zaheer Ul-Haq,Jeffry D. Madura,2015-12-16 *Frontiers in Computational Chemistry* originally published by Bentham and now distributed by Elsevier presents the latest research findings and methods in the diverse field of computational chemistry focusing on molecular modeling techniques used in drug discovery and the drug development process This includes computer aided molecular design drug discovery and development lead generation lead optimization database management computer and molecular graphics and the development of new computational methods or efficient algorithms for the simulation of chemical phenomena including analyses of biological activity In Volume 2 the authors continue the compendium with nine additional perspectives in the application of computational methods towards drug design This volume

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Sharma†,1997-07-10 This book presents a comprehensive and up to date account of the chemotherapy of parasitic diseases both human and veterinary The book starts with an overview of parasitic diseases The body of the book is divided into two parts antihelminthic drugs and antiprotozoal drugs Both parts start with chapters highlighting the biochemical targets available for chemotherapeutic interference Individual chapters deal with one chemical class of compounds and describe their origin structure activity relationship mode of action and methods of synthesis and their status both in clinical and veterinary practice The book will be useful to a wide spectrum of readers students embarking on a research career in parasitic chemotherapy clinicians and veterinarians and clinical pharmacologists desiring detailed information about the drugs currently in use and pharmaceutical technologists wanting to update their knowledge of the methods of manufacture

Profiles of Drug Substances, Excipients and Related Methodology ,1981-01-29 Profiles of Drug Substances Excipients and Related Methodology *Civil Engineering and Energy-Environment Vol 2* Qingfei Gao,Zhenhua Duan,2023-06-16 Civil

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doubt that among these parasitic diseases the helminthic infections of the gastrointestinal tract are about the most important because of their global distribution their high prevalence their effects on the nutritional status of men and animals their effects on the physical and mental development of children and their economic effects on the production of animals Anthelmintics are important elements in the control of these gastrointestinal helminthic infections In this volume the editors and authors have tried to find a way through the immense amount of information on anthelmintic drugs that is scattered throughout the literature Different authors have critically examined this information from different angles However the aim of all has been to provide the information needed by veterinarians physicians and public health workers to select the most suitable drug for a given situation

Cardiovascular Drug Therapy in the Elderly Adam Schneeweiss, Gotthard Schettler, 2013-11-11 Cardiovascular drug therapy has markedly progressed in the recent decades Not only have new drugs been introduced to clinical practice but new classes of drugs have been developed While in 1960 the practicing cardiologist had a selection of about only ten drugs in 1987 about 150 drugs are routinely used in cardiovascular diseases Elderly patients however usually do not enjoy the full benefit of this progress This might be due to lack of knowledge a conservative approach or the worldwide tendency not to try new drugs in the elderly It is now clear that the majority of patients that will be treated in cardiovascular clinics will be in the near future elderly patients Even now elderly patients form about one third of the patients with cardiovascular diseases These patients are approached however according to criteria developed for younger populations This is despite the fact that elderly patients differ from younger ones in most aspects including pathology epidemiology pathophysiology diagnostic approach management pharmacology pharmacokinetics rehabilitation and supportive treatment It is the purpose of this book to present to the clinician all drugs with which there is clinical experience in the elderly or which might be potentially useful for the elderly with cardiovascular diseases The data are presented without the authors taking a position This should allow the clinicians to make their own selection and individualize treatment vii viii Preface based on a wide data base Comparative data are presented only when specific comparative studies were performed

Comprehensive Lab Manual of Pharmacology and Biochemistry -Two in one Dr Mohd Mazhar, Dr Saroj, Dr. Renu Sehrawat, Ms. Preeti, 2025-07-30 The Comprehensive Lab Manual of Pharmacology and Biochemistry Two in One is a concise and practical guide designed for students and professionals in the pharmaceutical and biomedical sciences This manual combines essential laboratory procedures experiments and theoretical concepts from both pharmacology and biochemistry offering a unified resource for hands on learning With clear instructions illustrative diagrams and step by step protocols it supports academic coursework and practical exams making it an ideal companion for laboratory training and foundational skill development

Anesthesiology: Today and Tomorrow T.H. Stanley, W.C. Petty, 2012-12-06

Ethnopharmacological Properties, Biological Activity and Phytochemical Attributes of Medicinal Plants Volume 4 Bharat Singh, 2023-10-24 This book covers the morphological characteristics ethnopharmacological properties isolated and identified

structurally diverse secondary metabolites biological and pharmacological activities of medicinal plants Ethnopharmacology is the systematic study of folklore traditional medicines which continue to provide innovative drugs and lead molecules for the pharmaceutical industry In fact plant secondary metabolites used as a single molecule or as a mixture are medicines that can be effective and safe even when synthetic drugs fail Therefore the description of these secondary metabolites as well as methods for the targeted expression and or purification is of high interest In addition to surveying the morphological features ethnopharmacological properties biological and pharmacological activities and studies of clinical trials this book offers a comprehensive treatment of 56 plant species It also presents the cell culture conditions and various methods used for increasing the production of medicinally important secondary metabolites in plant cell cultures This volume Provides the morphological features habitat and distribution of each species of 56 genera selected from the different regions of the world Presents ethnopharmacological applications of various species of the 56 genera in this book Different species of 56 genera are used for ethnomedicinal uses by the people of various countries of the world Describes structures of various secondary metabolites identified in 56 plant species together with their biological and pharmacological activities Discusses strategies of secondary metabolites production such as organ culture pH elicitation hairy root cultures light and mutagenesis Provides a complete overview of each species of 56 genera and the complete information up to 2022 Ethnopharmacological Properties Biological Activity and Phytochemical Attributes of Medicinal Plants is an important book for undergraduate and postgraduate students pharmacologists phytochemists Ayurvedic practitioners medical doctors and biotechnologists interested in the ethnopharmacological properties phytochemistry biological and pharmacological activities of plants

Chemotherapy of Parasitic Diseases W.C. Campbell,R.S. Rew,2013-11-11 Have a chew of dulse said Crubog What is it asked Potter half suspiciously Seaweed Is it good for the virility And what is the virility asked the old man Does it make you more attractive to women Potier shouted in his ear No What is it good for then WortnS Worms Intestinal worms You ll never again pass a worm if you eat a fistful of dulse first thing in the morning and last thing at night If it s an anthelmintic I ll try a spot of it said Potter From Bogmail a novel by Patrick McGinley 1981 With modern techniques of chemical isolation and structure determination the old distinction between herbal and chemical remedies has largely been broken down By chemotherapy we now mean simply the treatment of disease by drugs the word medicines has unhappily been eclipsed The distinction made between chemotherapy and non chemical therapy e g radiation physiotherapy surgical intervention immunomodulation remains useful despite some minor overlapping The present work thus deals with drugs and their use in parasitic disease Since we are dealing with the treatment of incipient as well as established infection chemotherapy subsumes chemoprophylaxis as well as chemotherapeusis per se Definition of parasitism as a biological *modus vivendi* although important in itself need not concern us here We need simply delimit the scope of the book and that is easily done

The Search for Anti-Inflammatory Drugs Vincent J. Merluzzi,Julian Adams,2012-12-06 Perspectives on Anti Inflammatory

Drugs Inflammation is a very complicated process of interrelated events and cascades that does not allow for an easily defined focused attack for drug discovery. It is evident from years of research and development that certain classes of compounds e.g. NSAIDs, steroids and so on have had a measure of success in alleviating pain and even dampening cellular/hormonal mechanisms involved in the process. Clear mechanism related therapies e.g. for arthritis and targeted drugs e.g. for transplantation have not been available in the past and in reality research in inflammation has relied on more phenomenological approaches for resolving symptoms or on blatant cytoreductive approaches in cases like organ transplantation. In the last decade approaches that have revealed novel cellular pathways in which intervention is possible for lymphocyte regulation for example cyclosporine and FK506 and small molecular weight mediators e.g. leukotriene inhibitors are now either standard therapy or will be in a short time. These latter approaches have been the result of research from the 1970s up to the present.

Astrocytes Pt 2: Biochemistry, Physiology, and Pharmacology of Astrocytes Sergey Fedorff, 2012-12-02. *Astrocytes: Biochemistry, Physiology and Pharmacology of Astrocytes* Volume 2 focuses on the physiological and pharmacological aspects of astrocytes. This volume gives specific attention to intracellular metabolic activity, membrane components and functions, responses to neurotransmitters and other intrinsic factors and neuronal glial interactions. Studies in this text establish the astrocyte as an essential neuronal partner in the neuronal glial interrelationship throughout the life span of the neuron and also further explain the potential roles of astrocytes in brain function. Cell physiologists, neurophysiologists, neuropharmacologists, pediatric neurologists and gerontologists will find the book interesting.

Handbook of Toxinology W. T. Shier, 2020-08-26. Organized primarily around the mechanisms of action of the toxins at the biochemical, physiological and pathological level rather than by source, the handbook covers most toxins which have been clearly identified and characterized but emphasizes toxins that are more important by virtue of the sign.

Molecularizing Biology and Medicine Soraya de Chadarevian, Harmke Kamminga, 2003-09-02. The contributors present a coherent set of case studies of practices, technologies and strategies aimed at the isolation, investigation, manipulation, production and uses of molecules including vitamins, hormones, blood products, antibiotics and vaccines. These case studies examine how processes of molecularization were set in motion in the inter-war period, how they were used as a resource in the biomedical mobilization of World War II and how new alliances and strategies created as part of the war effort played a central role in the reorganisation of biomedicine in the post-war period.

Advances in Behavioral Pharmacology Travis Thompson, Peter B. Dews, James E. Barrett, 2013-10-22. *Advances in Behavioral Pharmacology* Volume 4 covers papers about the advances in behavioral pharmacology. The book presents papers on the behavioral mechanisms of drug dependence, the effects of food deprivation on drug reinforced behavior across most types of drugs abused by humans, routes of self-administration and species and a biobehavioral approach to treatment of amphetamine addiction. The text also describes the behavioral effects of nicotine in human and infrahuman studies, the behavioral pharmacology of cigarette

smoking the problems and perspectives in the behavioral toxicity of lead and the use of discriminative behavior as an index of toxicity Behavioral pharmacologists psychiatrists pharmacologists psychologists physicians and students taking these courses will find the book invaluable **Psychopharmacology Abstracts** ,1979 Estrogen/antiestrogen Action and Breast Cancer Therapy Virgil Craig Jordan,1986 This book marks one of the achievements of the Estrogen and Antiestrogen Action Basic and Clinical Aspects Wisconsin Clinical Cancer Center conference in June 1984 It is not intended to be a recount of the meeting proceedings but is rather a historical review of the development of this field of endeavor during the past 30 years The chapters have been written by many of the leading experts in the field who were asked to recount the development of a particular area or laboratory idea in which they had been personally involved The book is intended to provide both scientists and clinicians with a single volume overview of both the basic principles of hormonal control of breast cancer and the recent clinical results from cooperative groups around the world

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Table of Contents Pharmacological And Biochemical Properties Volume2

1. Understanding the eBook Pharmacological And Biochemical Properties Volume2
 - The Rise of Digital Reading Pharmacological And Biochemical Properties Volume2
 - Advantages of eBooks Over Traditional Books
2. Identifying Pharmacological And Biochemical Properties Volume2
 - Exploring Different Genres
 - Considering Fiction vs. Non-Fiction
 - Determining Your Reading Goals
3. Choosing the Right eBook Platform
 - Popular eBook Platforms
 - Features to Look for in an Pharmacological And Biochemical Properties Volume2
 - User-Friendly Interface
4. Exploring eBook Recommendations from Pharmacological And Biochemical Properties Volume2
 - Personalized Recommendations
 - Pharmacological And Biochemical Properties Volume2 User Reviews and Ratings

- Pharmacological And Biochemical Properties Volume2 and Bestseller Lists
- 5. Accessing Pharmacological And Biochemical Properties Volume2 Free and Paid eBooks
 - Pharmacological And Biochemical Properties Volume2 Public Domain eBooks
 - Pharmacological And Biochemical Properties Volume2 eBook Subscription Services
 - Pharmacological And Biochemical Properties Volume2 Budget-Friendly Options
- 6. Navigating Pharmacological And Biochemical Properties Volume2 eBook Formats
 - ePub, PDF, MOBI, and More
 - Pharmacological And Biochemical Properties Volume2 Compatibility with Devices
 - Pharmacological And Biochemical Properties Volume2 Enhanced eBook Features
- 7. Enhancing Your Reading Experience
 - Adjustable Fonts and Text Sizes of Pharmacological And Biochemical Properties Volume2
 - Highlighting and Note-Taking Pharmacological And Biochemical Properties Volume2
 - Interactive Elements Pharmacological And Biochemical Properties Volume2
- 8. Staying Engaged with Pharmacological And Biochemical Properties Volume2
 - Joining Online Reading Communities
 - Participating in Virtual Book Clubs
 - Following Authors and Publishers Pharmacological And Biochemical Properties Volume2
- 9. Balancing eBooks and Physical Books Pharmacological And Biochemical Properties Volume2
 - Benefits of a Digital Library
 - Creating a Diverse Reading Collection Pharmacological And Biochemical Properties Volume2
- 10. Overcoming Reading Challenges
 - Dealing with Digital Eye Strain
 - Minimizing Distractions
 - Managing Screen Time
- 11. Cultivating a Reading Routine Pharmacological And Biochemical Properties Volume2
 - Setting Reading Goals Pharmacological And Biochemical Properties Volume2
 - Carving Out Dedicated Reading Time
- 12. Sourcing Reliable Information of Pharmacological And Biochemical Properties Volume2
 - Fact-Checking eBook Content of Pharmacological And Biochemical Properties Volume2
 - Distinguishing Credible Sources

13. Promoting Lifelong Learning
 - Utilizing eBooks for Skill Development
 - Exploring Educational eBooks
14. Embracing eBook Trends
 - Integration of Multimedia Elements
 - Interactive and Gamified eBooks

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